



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE



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In Reply Refer To:  
FWS/R2/ES-AZ ESFO/070482

JUN 28 2019

Paul Enriquez, Director  
Acquisition, Real Estate and Environmental  
Border Wall Program Management Office  
U.S. Customs and Border Protection  
U.S. Border Patrol Headquarters  
1300 Pennsylvania Ave. 6.5E Mail Stop 1039  
Washington, DC 20229-1100

Dear Director Enriquez:

Thank you for your May 6, 2019, letter requesting input concerning 63 miles of proposed border barrier projects in Pima and Cochise counties, Arizona. In response to your request, we, the U.S. Fish and Wildlife Service (Service), provide the following comments and conservation recommendations to avoid, minimize and offset your proposed projects' potential adverse effects on trust species. The following 16 species, listed under the Endangered Species Act of 1973 (ESA), as amended, and seven other at-risk species of concern, may potentially occur in these areas ("E" is Federally endangered, "T" is Federally threatened, "AR" is at-risk):

Southwestern willow flycatcher (E), western yellow-billed cuckoo (T), Sonoran pronghorn (E), Acuna cactus (E), Sonoyta mud turtle (E), Quitobaquito pupfish (unique desert pupfish species) (E), ocelot (E), jaguar(E), northern Mexican gartersnake (T), Mexican spotted owl (T), Yaqui chub (E), Yaqui catfish (T), Beautiful shiner (T), Yaqui topminnow (E), Huachuca water umbel (E), Cochise pincushion cactus (E), cactus ferruginous pygmy owl (AR), lesser long-nosed bat (delisted in 2018) (AR), Sonoran desert tortoise (AR), Tumamoc globeberry (AR), flat-tailed horned lizard (AR), fringe-toed lizard (AR), and the monarch butterfly (AR).

### **Background**

The U.S. Customs and Border Protection (CBP) proposes to replace up to 63 miles of pedestrian fence and vehicle barriers with a new bollard wall in Pima and Cochise counties, Arizona. Figures 1 through 3 depict the locations where new bollard walls would replace the existing pedestrian fence and vehicle barriers as a part of the proposed projects. The projects include

improving or constructing roads, installing lighting, and installing other detection technology. The proposed bollard wall design includes 18 to 30 foot, concrete-filled, steel bollards, approximately six inches in diameter, supported by a 10-foot deep, solid cement footer approximately 8 to 12 inches wide. The CBP provided the below maps.

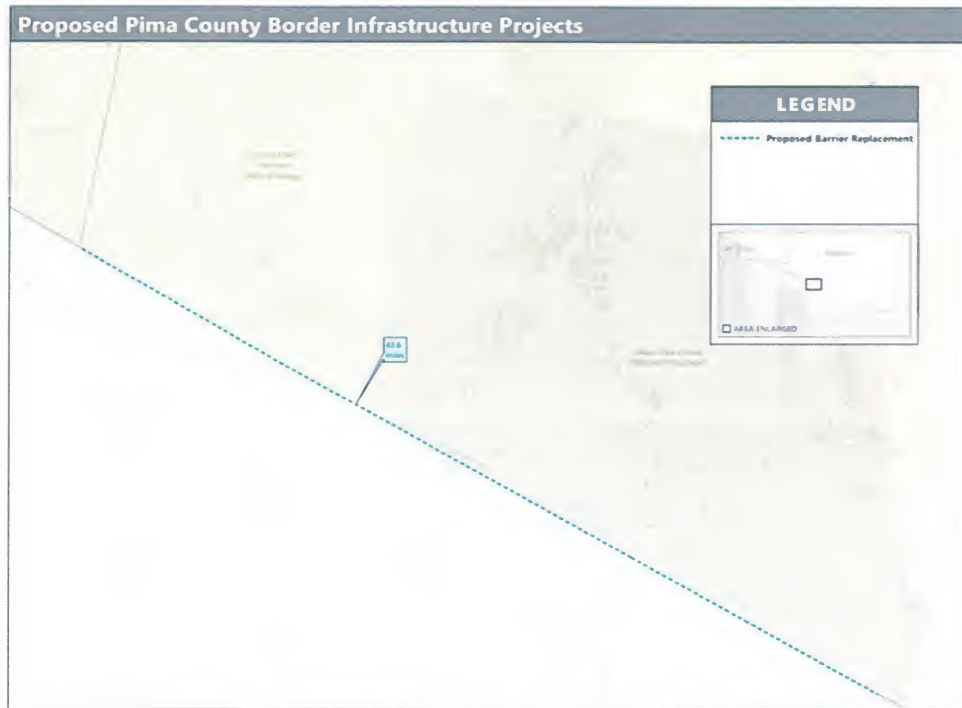


Figure 1. Location of proposed 43.6-mile pedestrian fence on Cabeza Prieta National Wildlife Refuge and Organ Pipe Cactus National Monument, Pima County, Arizona

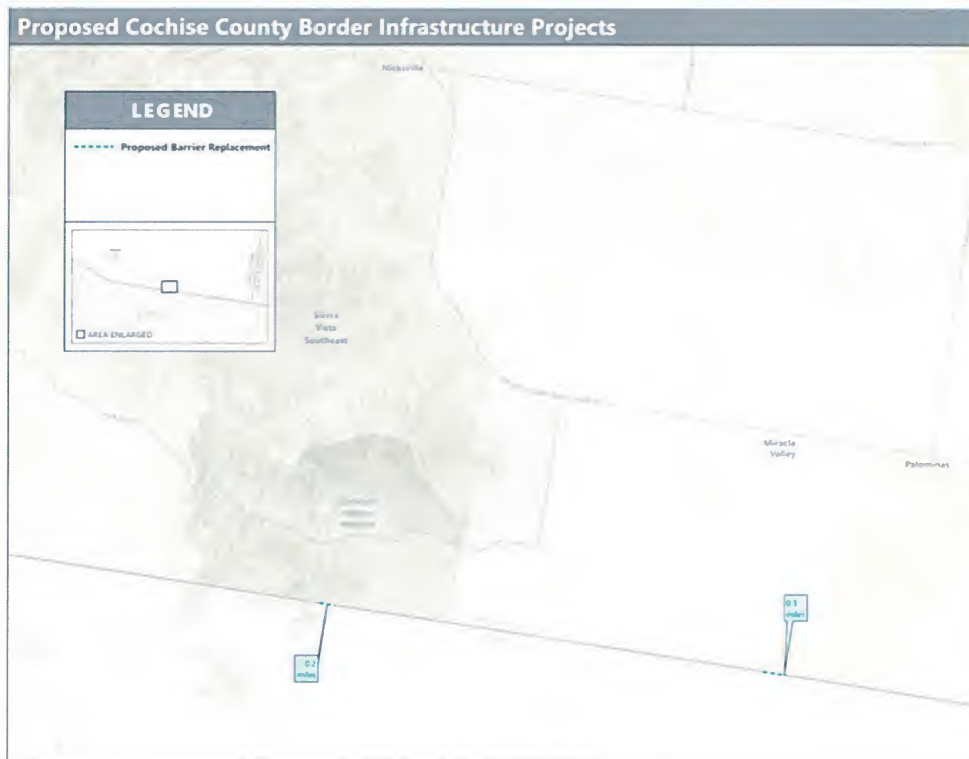


Figure 2. Location of two proposed 0.2 and 0.3-mile pedestrian fences, Cochise County, Arizona

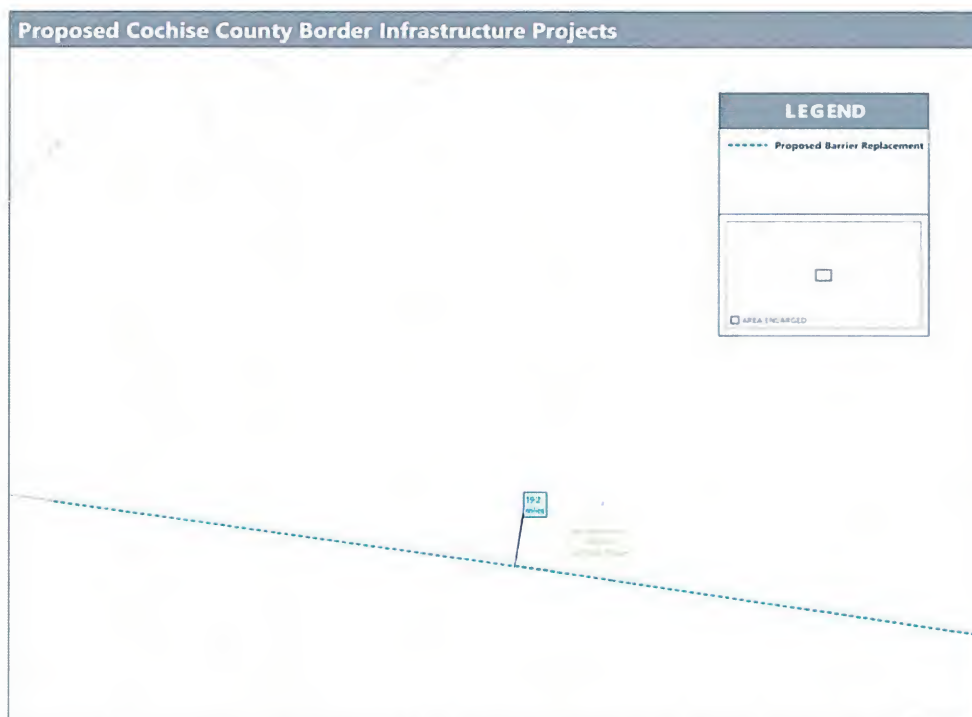


Figure 3. Location of proposed 19.2-mile pedestrian fence along San Bernardino National Wildlife Refuge and other lands, Cochise County, Arizona

## Concerns and Recommendations

While the Service does not know the proposed border infrastructure projects' entire scope, we understand environmental laws have been waived, including the ESA and Clean Water Act. The Service is committed to providing CBP and the U.S. Army Corps of Engineers practical information to promote cooperative conservation measures. Here, we 1) list our general concerns regarding potential impacts to trust species; 2) provide alternatives to an impermeable fence that may meet CBP's needs while minimizing adverse effects to trust species, and; 3) provide conservation recommendations (enclosure) to avoid, minimize and offset the projects' impacts to trust species and their associated habitats. Because of our uncertainty regarding the proposed border barriers' details, our concerns are not an exhaustive analysis of all potential impacts to trust species, or of all possible solutions. Our concerns also do not consider critical habitat designations.

### General Concerns

Placing a pedestrian fence along 63 miles of the Arizona/Mexico border would adversely affect (directly and indirectly) many trust species (i.e., endangered, threatened and candidate species; migratory birds, etc.). Southern Arizona is one of our most biodiverse areas, harboring at least 878 known species along the border (iNaturalist Border Bioblitz 2018). Therefore, conserving overall biodiversity and unique ecosystems has certain implications. Many Federal, tribal, state, and private land managers have spent years working together to manage the border area's valued biological and cultural resources. Therefore, involving landowners and managers to identify and monitor important resources prior to and during on-the-ground implementation, and providing resources to monitor border activity impacts, are vital to upholding partnerships and creating the best outcomes. Below, we discuss some of the most significant potential direct and indirect effects and provide suggested general alternatives.

#### Potential direct effects from placing an impermeable fence along the border

- Ceasing or restricting movements within and among populations may have deleterious demographic effects, such as isolating small populations or disrupting species' metapopulation dynamics. Restricting movement would be particularly detrimental to migratory species, species with broad home ranges, and for those that rely on connectivity with Mexico for their continued persistence in Arizona (e.g., jaguar, ocelot).
- Ceasing or reducing gene flow among or within populations may result in losing populations' genetic variability and ultimately reduce the species' long-term survival likelihood.
- Direct mortality via vehicular collisions along roads associated with the border barrier or via fence entanglement.
- Habitat reduction, loss, fragmentation and degradation (fence and road footprint; disrupting hydrological processes by fence, road, and footer placement; increased erosion and diminished water quality, and; decreased quantity of riparian and aquatic zones).
- Potential bird and bat strikes (they use visual navigation cues), such as lesser long-nosed bats and Mexican long-tongued bats, and nocturnal birds.
- Temporarily disturbing (or directly killing) species during construction; ongoing disturbance during maintenance and operation.

- Overall, increased human presence interrupts wildlife behavior that can lead to changed movement, foraging, hunting, water access, mating, and rearing young, along with changed circadian rhythm, cell and DNA repair, and other physiological stress reactions, all of which can impact fitness and survival over time.

#### Potential indirect effects from placing a pedestrian fence along the border

- Increased disturbance in certain areas from redirecting traffic (illegal and pursuant law enforcement) to unsecured border areas. For example, the proposed border pedestrian barrier on Cabeza Prieta National Wildlife Refuge (CPNWR) and Organ Pipe Cactus National Monument may redirect and increase traffic onto areas without a pedestrian fence. The CPNWR is a key area for Sonoran pronghorn survival and recovery. Increased traffic may further impact important pronghorn use areas, including fawning habitat, forage enhancement plots, water sites, and the semi-captive pronghorn breeding pen, reducing these crucial emergency recovery actions' effectiveness. Increasing activity in pronghorn habitat could disturb pronghorn and result in short-term habitat access denial, likely resulting in severe adverse physiological effects to pronghorn.
- Increased habitat impacts in certain areas from redirecting illegal traffic and pursuant law enforcement to unsecured border areas. Pedestrian fences may particularly shift traffic (illegal and law enforcement) to Arizona's mountainous regions.
- During rain events, the border barrier could act as a dam, capturing debris and backing up water flow. This is particularly concerning around Quitobaquito Pond as floods could erode and destabilize the pond dike and other infrastructure. Restricted flows could also inhibit recharge into the Rio Sonoyta.
- Funneling illegal traffic to more rugged areas may also increase fire risk and frequency in these more sensitive areas.
- Fires that illegal immigrants start in mountainous regions, especially during the severe drought conditions prevalent in southern Arizona, could be disastrous for mountain, upland and aquatic species, such as the Mexican spotted owl, Sonoran chub, Kearney blue star, lemon fleabane, and New Mexico ridge-nosed rattlesnake.

#### Potential Lighting Impacts

- Artificial lighting at night (ALAN) and ecological light pollution interrupt natural wildlife patterns, behaviors, and activities, including birds, mammals, amphibians, reptiles, and arthropods. Scientists have studied these impacts since the 1800s and scientific literature documents them well.
- Fauna respond to natural sun, moon, and star light, as well as to varying degrees of natural darkness. Migratory species orient themselves based on the presence or absence of natural light.
- Animals' nocturnal activities often occur to avoid predation or to take advantage of more favorable climatic conditions. Additional light can increase predators' foraging efficiency, and change prey species' behavior.
- Many species become attracted to, or disoriented by, ALAN. Flying species, such as birds and insects, flutter about ALAN until collisions damage their wings or they collapse from exhaustion. This behavior change can also expose them to predation or divert them into an area with few resources, where they can die from starvation or exposure.

- Some reptiles and amphibians gauge their mating and reproductive opportunities based on light or darkness, and confusion from ALAN can lead to suboptimal decisions in mating behavior, egg laying, and egg placement, leading to greater predation or exposure.
- Many species, often prey animals or mammals that fear humans, expend effort avoiding ALAN, which can sap energy and take a physiological toll and expose them to additional risks, including reduced health from stress.

#### General Suggested Alternatives

- Consider substituting electronic surveillance (Integrated Fixed Towers (IFTs), infrared sensors, balloons, drones, etc.) for proposed border barrier segments, or for border barriers in remote areas and/or known wildlife corridors.
- Consider leaving existing vehicle fencing (assisted by IFTs, etc.) in lieu of replacing it with the proposed 30-foot bollard barriers. Studies show that vehicle fencing, in conjunction with other technology, can be as effective as bollard fencing in prohibiting illegal substance movement and human movement in some areas, such as along the border in San Bernardino National Wildlife Refuge.
- Should an area require constructing the proposed border barrier, consider widening the gap between bollards to greater than four inches. Many mammals, turtles, and tortoises are wider than four inches and the barrier could block their movement. Blocked movements could have long-term implications not only for the concerns listed above, but in light of allowing future range shifts in response to climate change.
- Should an area require constructing the proposed border barrier, consider lowering the height from 30 feet to match the surrounding natural canopy height to alleviate the threat to flying birds, bats, and insect pollinators that use the habitat for breeding and feeding at the height of their associated plant species.
- Omit lighting if possible. Use infrared technology at night, which allows natural darkness to provide the nocturnal conditions within which animals evolved. If you deem lighting necessary, consider replacing white light with red light to avoid wildlife impacts and to maximize human vision while preventing light blindness.

#### Conservation Recommendations

Please see the enclosure for our conservation recommendations by location and species to avoid, minimize, and offset border barrier projects' impacts to trust species. To address some of the proposed projects' most significant potential effects, the Service recommends that CBP include design measures to allow continued wildlife movement between Arizona and Mexico to the greatest degree possible.

We appreciate your efforts to engage landowners and managers and we are ready to work together to minimize the proposed projects' potential impacts to trust species. Given the high degree of interest in border activities, and available expertise in southern Arizona hydrology, wildlife, and habitats, we request the opportunity to participate in project planning to minimize impacts. We also acknowledge that controlling cross-border traffic can benefit wildlife and wildlife habitats by reducing border crossers' regular travel through border ecosystems and



vegetation communities. We look forward to continually working with you to protect and recover listed and sensitive species. Please contact me at 505-248-6492, if you have questions or need further assistance.

Sincerely,

A handwritten signature in black ink, consisting of a stylized 'S' followed by a horizontal line with a small upward flick at the end.

**Acting** Assistant Regional Director  
Ecological Services

Enclosure